AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (currently amended) An ultrasonic urinary volume sensor comprising:

a probe having a plurality of ultrasonic oscillators for oscillating ultrasonic waves toward a wall surface of a bladder, which is adhesively placed over a body surface in an abdominal section such that a lower end of said probe is aligned with an upper end of the pubic bone via an ultrasonic wave transmission medium interposed therebetween; and

a processing section for detecting and processing reflective echoes of the ultrasonic waves from said wall surface of the bladder, which have been oscillated by said plurality of ultrasonic oscillators of said probe, wherein

said plurality of ultrasonic oscillators ~~is disposed along a direction of expansion of the bladder~~ are disposed on said probe such that said plurality of ultrasonic oscillators are aligned along a direction of a head when said probe is placed over the body surface in the abdominal section; and

said processing section comprises:

a hardware section electrically connected to said plurality of ultrasonic oscillators, which excites said plurality of ultrasonic oscillators to cause said plurality of ultrasonic oscillators to oscillate the ultrasonic waves and detects reflective echoes of the ultrasonic waves from the wall surface of the bladder; and

a CPU section electrically connected to said hardware section, which is operable for:

detecting an ultrasonic wave echo peak (Pi) reflected by a posterior wall of the bladder from the reflective echoes detected by said hardware section;

executing a multiplication of the detected ultrasonic wave echo peak (Pi) by a distance (Di) between an anterior wall and the posterior wall of the bladder that can be specified from said ultrasonic wave echo peak (Pi) for each one of said plurality of ultrasonic oscillators;

executing an addition of respective values from the multiplications to determine a measured indicator value (PD);

calculating a corrected indicator value by executing a multiplication of said measured indicator value (PD) by a coefficient corresponding to a difference among individuals based on their anatomical structures and a specific posture during the measurement;

calculating an average indicator value by performing an average processing on a plurality of said corrected indicator values obtained in time series; and

estimating a urinary volume in the bladder based on the average indicator value.

2. (currently amended) An ultrasonic urinary volume sensor in accordance with claim 1, in which ~~said probe is adhesively placed over the body surface in the abdominal section such that a lower end of said probe is aligned with an upper end of the pubic bone~~ the average processing comprises a processing for calculating an average value that is an intermediate value among the plurality of corrected indicator values obtained in time series.

3. (currently amended) An ultrasonic urinary volume sensor in accordance with claim 1, in which ~~said probe is adapted to be adhesively placed over the body surface in the abdominal section via said supersonic transmission medium not only occasionally for a measurement but also for all the time~~ the average processing further comprises a moving average processing to be performed on a plurality of the average values obtained in time series.

4. (currently amended) An ultrasonic urinary volume sensor in accordance with claim 1, in which ~~said processing section is operable for:~~

~~detecting an ultrasonic wave echo peak (P) of a posterior wall of the bladder from the reflective echoes of the ultrasonic waves from the wall surface of the bladder, which have been oscillated by each one of said plurality of ultrasonic oscillators;~~

~~executing a multiplication of the detected ultrasonic wave echo peak (p) by a distance between an anterior wall and the posterior wall of the bladder (D) that can be specified from said ultrasonic wave echo peak (P) for each one of said plurality of ultrasonic oscillators;~~

~~executing an addition of respective values from the multiplications to determine a measured indicator value (PD); and~~

~~executing a multiplication of said measured indicator value (PD) by a coefficient corresponding to a difference among individuals based on their anatomical structures and a specific posture during the measurement to thereby estimate the urinary volume in the bladder reliably~~ said hardware section comprises a low noise amplifier, an A/D converting circuit, a waveform memory, a timing generating circuit and an ultrasonic oscillator exciting circuit.

5. (currently amended) An ultrasonic urinary volume sensor in accordance with claim 4, in which said ~~processing section comprises a hardware section and a CPU section, wherein said hardware section is electrically connected to said plurality of ultrasonic oscillators of said probe and said CPU section, and includes a low noise amplifier, an A/D converting circuit, a waveform memory, a timing generating circuit and an ultrasonic oscillator exciting circuit~~ said CPU section comprises a gain control section for controlling a gain of said low noise amplifier, and an amplification factor for said low noise amplifier that is automatically controlled by said gain control section.

6. (currently amended) An ultrasonic urinary volume sensor in accordance with claim [[5]] 1, in which

said CPU section comprises a real-time clock for outputting a signal at each predetermined timing, and said CPU section controls said hardware section in response to said signal output from said real-time clock.

7. (currently amended) An ultrasonic urinary volume sensor in accordance with claim [[5]] 1, ~~in which~~ further comprising, a detachable storage medium, wherein

said CPU section ~~comprises a gain control section for controlling a gain of said low noise amplifier, and an amplification factor for said low noise amplifier is automatically controlled by said gain control section~~ is electrically connected to said detachable storage medium.

8. (currently amended) An ultrasonic urinary volume sensor in accordance with claim [[5]] 1, further comprising, ~~a detachable storage medium,~~ a wireless data communication function, wherein said CPU section is electrically connected to said ~~storage medium~~ wireless data communication function.

9. (currently amended) An ultrasonic urinary volume sensor in accordance with claim [[5]] 1, ~~further comprising,~~ wherein said ~~CPU section is electrically connected to said wireless data communication function~~ probe comprises a posture recognition sensor.

10. (currently amended) An ultrasonic urinary volume sensor in accordance with claim [[5]] 9, in which said ~~probe comprises a~~ posture recognition sensor is a triaxial acceleration sensor.